CLAIMS

We claim:

1. A method for impregnating a porous metal pad with a polymer, wherein the method comprises:

(a) providing a first sheet of biocompatible metal, a first sheet of heat-resistant releasable plastic film, a sheet of semi-crystalline polymer film, a porous metal pad, a second sheet of heat-resistant releasable plastic film, and a second of sheet of biocompatible metal;

(b) creating an abutting arrangement of the sheets and pad such that the biocompatible metal sheets form the outer most layers of the arrangement, and the porous metal pad abuts the polyaryletherketone film; and

(c) placing the arrangement into a press for sufficient time and under sufficient temperature and pressure to allow the semi-crystalline polymer film to interpose itself within the porous metal sheet, to form an impregnated porous metal pad.

2. The method of Claim 1, wherein the biocompatible metal sheets comprise commercially pure titanium.

3. The method of Claim 1, wherein the semi-crystalline polymer film is selected from the group consisting of polyetheretherketone, polyaryletherketone, and polyphenylene-sulfide.

4. The method of Claim 1, wherein the heat resistant releasable plastic film is a polyimide film.

5. A method of forming an orthopaedic implant having a porous metal surface, the method comprising:

(a) providing a first sheet of biocompatible metal, a first sheet of heat resistant releasable plastic film, a sheet of semi-crystalline polymer film, a porous metal pad, a second sheet of heat resistant releasable plastic film, and a second sheet of biocompatible metal;

(b) arranging the of sheets and the pad, such that the same are each adjacent to at least one other sheet or pad, and that the biocompatible metal sheets form the outermost layers of the arrangement, and the porous metal pad abuts the polyaryletherketone film sheet;

(c) placing the layered arrangement into a press for a sufficient time and under sufficient temperature and pressure to allow the polyaryletherketone film to interpose itself into the porous metal pad, thus forming an impregnated porous metal pad;

(d) placing the impregnated pad into a molding device;

(e) molding a polymer implant body adjacent to the polymer impregnated inner surface or the pad, such that it is bonded to the surface of the implant body;

6. The method of Claim 5, wherein the biocompatible metal is titanium.

7. The method of Claim 5, wherein the semi-crystalline polymer film is selected from the group consisting of polyetheretherketone, polyaryletherketone and polyphenylenesulfide.

8. The method of Claim 5, wherein the heat resistant releasable polymer film is a polyimide film.

9. A method of forming an orthopaedic implant having a core, a polymeric intermediary layer, and a porous metal surface, the method comprising:

(a) providing a substantially solid core;

(b) providing a porous metal pad having a desired size and a desired shape suitable for bonding to the core;

(c) providing a first sheet of biocompatible metal, a first sheet of heat resistant releasable plastic film, a sheet of semi-crystalline polymer film, a second sheet of heat resistant releasable plastic film, and a second sheet of biocompatible metal;

(d) providing an abutting layered arrangement of the sheets and the porous metal pad such that the biocompatible metal sheets form the outermost layer of the arrangement such that the porous metal sheet abuts the polyaryletherketone film sheet;

(e) placing the layered arrangement into a press for sufficient time and under sufficient temperature and pressure to allow the semi-crystalline polymer film to interpose itself into the porous metal pad; thus forming an impregnated porous metal pad;

(f) placing the arrangement and the core into an injection molding device; and

(g) injection molding a polymer intermediate layer around the core and between the core and the polymer impregnated inner surface of the pad.

10. The method of Claim 9, wherein the metal core comprises a cobalt-chromium-molybdenum alloy.

11. The method of Claim 9, wherein the biocompatible metal sheet is commercially pure titanium.

12. The method of Claim 9, wherein the heat resistant releasable plastic film is a polyimide film.

13. The method of Claim 9, wherein the polymer intermediate layer is selected from the group consisting of polyaryletherketone, polyetheretherketone and polyphenylenesulfide.

14. The method of Claim 9, wherein the semi-crystalline polymer is selected from the group consisting of polyaryletherketone, polyetheretherketone and polyphenylenesulfide.